

**Listing of Claims:**

1. (Previously Presented) An image processing apparatus,  
comprising:

an exposing device for exposing a thermally developable  
image forming material so as to form a latent image on the image  
5 forming material based on image data;

a thermal developing device for thermally developing and  
visualizing the latent image on the exposed image forming  
material so as to form an image;

10 a measuring device for measuring an image density of the  
image on the developed image forming material;

a calibrating device for forming a table to define a  
relation between an image signal and image density thereof  
based on a plurality of different test image data and measured  
image densities thereof;

15 a storing device for storing characteristic change model  
data indicating a characteristic change of the thermal developing  
device over time after starting of operation of the image  
processing apparatus;

20 a difference calculating device to calculate, each time an  
image is formed based on an image signal corresponding to  
diagnostic image data, a density difference between an image  
density at a time at which the table was formed and an image

density at a time at which the image is formed based on the image signal corresponding to the diagnostic image data, said

25 calculation of the density difference being performed based on the characteristic change model data; and

a correcting device for correcting the table based on the density difference calculated by the difference calculating device.

2. (Previously Presented) The image processing apparatus of claim 1, wherein said characteristic change model data indicates the characteristic change starting from a time at which a power source of the image processing apparatus is turned on.

3. (Previously Presented) The image processing apparatus of claim 1, wherein the characteristic change model data comprises predetermined characteristic change model data installed from outside the image processing apparatus.

4. (Previously Presented) The image processing apparatus of claim 1, wherein the characteristic change model data comprises actual characteristic change model data obtained based on image densities measured by the measuring device each time any said  
5 image forming material is processed.

5. (Currently Amended) An image processing apparatus,  
comprising:

an exposing device for exposing a thermally developable  
image forming material so as to form a latent image on the image  
5 forming material based on image data;

a thermal developing device for thermally developing and  
visualizing the latent image on the exposed image forming  
material so as to form an image;

10 a measuring device for measuring an image density of the  
image on the developed image forming material;

a calibrating device for forming a table to define a  
relation between an image signal and an image density thereof  
based on a plurality of different test image data and measured  
image densities thereof;

15 a storing device for storing passage-time film  
characteristic model data indicating a change over time of a  
characteristic of the image forming material after loading of the  
image forming material in the image processing apparatus and for  
storing result data obtained by exposing a part of the image  
20 forming material with a light quantity that corresponds to a  
predetermined density according to the table at a time of forming  
a diagnosis image and by measuring a density at said part of the  
image forming material;

25 a difference calculating device to calculate, each time an  
image is formed based on an image signal corresponding to  
diagnostic image data, a density difference between an image  
density at a time at which the table was formed and an image  
density at a time at which the image is formed based on the image  
signal corresponding to the diagnostic image data, said  
30 calculation of the density difference being performed based on  
the passage-time film characteristic model data; ~~and~~

a correcting device for correcting the table based on the  
density difference calculated by the difference calculating  
device;

35 a first controlling device for controlling at least one of  
the exposing device and the developing device so as to offset a  
characteristic change of at least one of the exposing device and  
the developing device;

40 a first estimation device for calculating and keeping a  
characteristic change of the image forming material based on the  
stored result data; and

a second controlling device for controlling a least one of  
the exposing device and the developing device based on the  
characteristic change of the image forming material calculated by  
45 the first estimation device instead of the stored passage-time  
film characteristic model data so as to offset the characteristic  
change of the image forming material.

Claim 6 (Cancelled).

7. (Currently Amended) The image processing apparatus of claim ~~6~~ 5, further comprising:

5 a clearing device for clearing the characteristic change calculated by the first estimation device when the table is prepared by the calibrating device and when the second controlling device is operated.

8. (Currently Amended) The image processing apparatus of claim ~~7~~ 5, wherein the first controlling device and the second controlling device are operated when an image formation operation is resumed after the image processing apparatus has  
5 been stopped for a period of time that is not shorter than a predetermined time.

9. (Currently Amended) The image processing apparatus of claim ~~6~~ 5, wherein said first estimation device calculates and keeps a characteristic change of the image forming material every time the image processing apparatus stops for a predetermined period of time.

Claims 10-13 (Cancelled).

14. (Previously Presented) An image processing apparatus,  
comprising:

an exposing device for exposing a thermally developable  
5 image forming material so as to form a latent image on the image  
forming material based on image data;

a thermal developing device for thermally developing and  
visualizing the latent image on the exposed image forming  
material so as to form an image;

10 a measuring device for measuring an image density of the  
image on the developed image forming material;

a calibrating device for forming a table to define a  
relation between an image signal and an image density thereof  
based on a plurality of different test image data and measured  
15 image densities thereof;

a first storing device for storing characteristic change  
model data indicating changes over time of a characteristic of  
the thermal developing device after starting of operation of the  
image processing apparatus;

20 a second storing device for storing passage-time film  
characteristic model data indicating a change over time of a  
characteristic of the image forming material after loading of the  
image forming material in the image processing apparatus; and

a difference calculating device to calculate, each time an  
25 image is formed based on an image signal corresponding to

diagnostic image data, a density difference between an image density at a time at which the table was formed and an image density at a time at which the image is formed based on the image signal corresponding to the diagnostic image data, said

30 calculation of the density difference being performed based on the characteristic change model data and the passage-time film characteristic model data; and

a correcting device for correcting the table based on the density difference calculated by the difference calculating  
35 device.

15. (Previously Presented) The image processing apparatus of claim 14, wherein said characteristic change model data indicates the characteristic change starting from a point of time at which a power source of the image processing apparatus is  
5 turned on.

16. (Previously Presented) A method of image processing with an image processing apparatus, comprising:

exposing a thermally developable image forming material so as to form a latent image on the image forming material based on  
5 image data;

thermally developing and visualizing, with a thermal developing device, the latent image on the exposed image forming material so as to form an image;

measuring an image density of the image on the developed  
10 image forming material;

forming a table to define a relation between an image signal and image density thereof based on a plurality of different test image data and measured image densities thereof;

storing characteristic change model data indicating a  
15 characteristic change of the thermal developing device over time after starting of operation of the image processing apparatus;

calculating, each time an image is formed based on an image signal corresponding to diagnostic image data, a density difference between an image density at a time at which the table  
20 was formed and an image density at a time at which the image is formed based on the image signal corresponding to the diagnostic image data, said calculation of the density difference being performed based on the characteristic change model data; and

correcting the table based on the calculated density  
25 difference.

17. (Previously Presented) The method of claim 16, wherein the characteristic change model data indicates the characteristic



change starting from a time at which a power source of the image processing apparatus is turned on.

18. (Previously Presented) The method of claim 16, wherein said characteristic change model data comprises predetermined characteristic change model data installed from outside the image processing apparatus.

19. (Previously Presented) The method of claim 16, wherein said characteristic change model data comprises actual characteristic change model data obtained based on image densities measured by the measuring device each time any said  
5 image forming material is processed.

20. (Currently Amended) A method of image processing with an image processing apparatus, comprising:

exposing, with an exposing device, a thermally developable image forming material so as to form a latent image on the image  
5 forming material based on image data;

thermally developing and visualizing, with a thermal developing device, the latent image on the exposed image forming material so as to form an image;

measuring an image density of the image on the developed  
10 image forming material;

forming a table to define a relation between an image signal and an image density thereof based on a plurality of different test image data and measured image densities thereof;

storing passage-time film characteristic model data

15 indicating a change over time of a characteristic of the image forming material after loading of the image forming material in the image processing apparatus;

calculating, each time an image is formed based on an image signal corresponding to diagnostic image data, a density  
20 difference between an image density at a time at which the table was formed and an image density at a time at which the image is formed based on the image signal corresponding to the diagnostic image data, said calculation of the density difference being performed based on the passage-time film characteristic model

25 data; ~~and~~

correcting the table based on the calculated density difference;

storing result data obtained by exposing a part of the image forming material with a light quantity that corresponds to a  
30 predetermined density according to the table at a time of forming a diagnosis image and by measuring a density at said part of the image forming material;

controlling at least one of the exposing device and the  
developing device so as to offset a characteristic change of at  
least one of the exposing device and the developing device;

calculating and keeping a characteristic change of the image  
forming material based on the stored result data; and

controlling at least one of the exposing device and the  
developing device based on the calculated characteristic change  
of the image forming material instead of the stored passage-time  
film characteristic model data so as to offset the characteristic  
change of the image forming material.

Claim 21 (Cancelled).

22. (Currently Amended) The method of claim ~~21~~ 20, further comprising:

clearing the calculated characteristic change of the image forming material when the table is prepared and when the at least one of the exposing device and the developing device are controlled based on the calculated characteristic change of the image forming material.

23. (Currently Amended) The method of claim ~~21~~ 20, wherein the controlling steps are carried out when an image processing operation is resumed after the image processing apparatus has

5      been stopped for a period of time that is not shorter than a  
predetermined time.

24. (Currently Amended) The method of claim ~~21~~ 20, wherein  
a characteristic change of the image forming material is  
calculated and kept every time the image processing apparatus  
stops for a predetermined period of time.

Claims 25-28 (Cancelled).

29. (Previously Presented) A method of image processing  
with an image processing apparatus, comprising:

5      exposing a thermally developable image forming material so  
as to form a latent image on the image forming material based on  
image data;

thermally developing and visualizing, with a thermal  
developing device, the latent image on the exposed image forming  
material so as to form an image;

10      measuring an image density of the image on the developed  
image forming material;

forming a table to define a relation between an image signal  
and an image density thereof based on a plurality of different  
test image data and measured image densities thereof;

15 storing characteristic change model data indicating changes  
over time of a characteristic of a thermal developing device  
after starting of operation of the image processing apparatus;  
storing passage-time film characteristic model data  
indicating a change over time of a characteristic of the image  
forming material after loading of the image forming material in  
20 the image processing apparatus; and  
calculating, each time an image is formed based on an image  
signal corresponding to diagnostic image data, a density  
difference between an image density at a time at which the table  
was formed and an image density at a time at which the image is  
25 formed based on the image signal corresponding to the diagnostic  
image data, said calculation of the density difference being  
performed based on the characteristic change model data and the  
passage-time film characteristic model data; and  
correcting the table based on the calculated density  
30 difference.

30. (Previously Presented) The method of claim 29, wherein  
the characteristic change model data indicates the characteristic  
change starting from a time at which a power source of the image  
processing apparatus is turned on.

31. (Previously Presented) A computer-readable recording medium having a computer program stored thereon to be executed by a computer to cause the computer to control an image processor to execute functions comprising:

5        an exposing function for exposing a thermally developable image forming material so as to form a latent image on the image forming material based on image data;

         a thermal developing function for thermally developing and visualizing, with a thermal developing device, the latent image  
10       on the exposed image forming material so as to form an image;

         a measuring function for measuring an image density of the image on the developed image forming material;

         a calibrating function for forming a table to define a relation between an image signal and image density thereof based  
15       on a plurality of different test image data and measured image densities thereof;

         a storing function for storing characteristic change model data indicating a characteristic change of the thermal developing device over time after starting of operation of the image  
20       processor;

         a difference calculating function to calculate, each time an image is formed based on an image signal corresponding to diagnostic image data, a density difference between an image density at a time at which the table was formed and an image

25 density at a time at which the image is formed based on the image  
signal corresponding to the diagnostic image data, said  
calculation of the density difference being performed based on  
the characteristic change model data; and

30 a correcting function for correcting the table based on the  
density difference calculated by the difference calculating  
function.

32. (Previously Presented) The computer-readable recording  
medium of claim 31, wherein the characteristic change model data  
indicates the characteristic change starting from a time at which  
a power source of the image processor is turned on.

33. (Previously Presented) The computer-readable recording  
medium of claim 31, wherein said characteristic change model data  
comprises predetermined characteristic change model data  
installed from outside the image processor.

34. (Previously Presented) The computer-readable recording  
medium of claim 31, wherein said characteristic change model data  
comprises actual characteristic change model data obtained based  
on image densities measured by the measuring function each time  
5 any said image forming material is processed.

35. (Currently Amended) A computer-readable recording medium having a computer program stored thereon to be executed by a computer to cause the computer to control an image processor to execute functions comprising:

5           an exposing function, with an exposing device, for exposing a thermally developable image forming material so as to form a latent image on the image forming material based on image data;

          a developing function for thermally developing and visualizing, with a thermal developing device, the latent image  
10       on the exposed image forming material so as to form an image;

          a measuring function for measuring an image density of the image on the developed image forming material;

          a calibrating function for forming a table to define a relation between an image signal and an image density thereof  
15       based on a plurality of different test image data and measured image densities thereof;

          a storing function for storing passage-time film characteristic model data indicating a change over time of a characteristic of the image forming material after loading of the  
20       image forming material in the image processor;

          a difference calculating function to calculate, each time an image is formed based on an image signal corresponding to diagnostic image data, a density difference between an image density at a time at which the table was formed and an image



25 density at a time at which the image is formed based on the image  
signal corresponding to the diagnostic image data, said  
calculation of the density difference being performed based on  
the passage-time film characteristic model data; ~~and~~

30 a correcting function for correcting the table based on the  
density difference calculated by the difference calculating  
function;

a further storing function for storing result data obtained  
by exposing a part of the image forming material with a light  
quantity that corresponds to a predetermined density according to  
35 the table at a time of forming a diagnosis image and by measuring  
a density at said part of the image forming material;

a first controlling function for controlling at least one of  
the exposing device and the developing device so as to offset a  
characteristic change of at least one of the exposing device and  
40 the developing device;

a first estimating function for calculating and keeping a  
characteristic change of the image forming material based on the  
stored result data; and

a second controlling function for controlling at least one  
45 of the exposing device and the developing device based on the  
calculated characteristic change of the image forming material  
instead of the stored passage-time film characteristic model data

so as to offset the characteristic change of the image forming material.

Claim 36 (Cancelled).

37. (Currently Amended) The computer-readable recording medium of claim ~~36~~ 35, wherein the image processor is controlled to perform further functions comprising:

5 a clearing function for clearing the characteristic change calculated by the first estimating function when the table is prepared by the calibrating function and when the second controlling is performed.

38. (Currently Amended) The computer-readable recording medium of claim ~~36~~ 35, wherein the first controlling function and the second controlling function are carried out when an image processing operation is resumed after the image processor has  
5 been stopped for a period of time that is not shorter than a predetermined time.

39. (Currently Amended) The computer-readable recording medium of claim ~~36~~ 35, wherein said first estimation function calculates and keeps a characteristic change of the image forming

material every time the image processor stops for a predetermined period of time.

Claims 40-43 (Cancelled).

44. (Previously Presented) A computer-readable recording medium having a computer program stored thereon to be executed by a computer to cause the computer to control an image processor to execute functions comprising:

5        an exposing function for exposing a thermally developable image forming material so as to form a latent image on the image forming material based on image data;

10        a developing function for developing and visualizing, with a thermal developing device, the latent image on the exposed image forming material so as to form an image;

      a measuring function for measuring an image density of the image on the developed image forming material;

15        a calibrating function for forming a table to define a relation between an image signal and an image density thereof based on a plurality of different test image data and measured image densities thereof;

      a first storing function for storing characteristic change model data indicating changes over time of a characteristic of

the thermal developing device after starting of operation of the  
20 image processor;

a second storing function for storing passage-time film  
characteristic model data indicating a change over time of a  
characteristic of the image forming material after loading of the  
image forming material in the image processor; and

25 a difference calculating function to calculate, each time an  
image is formed based on an image signal corresponding to  
diagnostic image data, a density difference between an image  
density at a time at which the table was formed and an image  
density at a time at which the image is formed based on the image  
30 signal corresponding to the diagnostic image data, said  
calculation of the density difference being performed based on  
the characteristic change model data and the passage-time film  
characteristic model data; and

a correcting function for correcting the table based on the  
35 density difference calculated by the difference calculating  
function.

45. (Previously Presented) The computer-readable recording  
medium of claim 44, wherein the characteristic change model data  
indicates the characteristic change starting from a time at which  
a power source of the image processor is turned on.

46. (Previously Presented) An image processing apparatus,  
comprising:

an exposing device for exposing an image forming material so  
as to form a latent image on the image forming material based on  
5 image data;

a developing device for developing and visualizing the  
latent image on the exposed image forming material so as to form  
an image;

10 a measuring device for measuring an image density of the  
image on the developed image forming material;

a calibrating device for forming a table to define a  
relation between an image signal and an image density thereof  
based on a plurality of different test image data and measured  
image densities thereof;

15 a storing device for storing passage-time film  
characteristic model data that indicates a change over time of a  
characteristic of the image forming material;

a difference calculating device to calculate a density  
difference, based on the passage-time film characteristic model  
20 data, between an image density at a time at which the table was  
formed and an image density at a time at which an image is formed  
based on an image signal corresponding to diagnostic image data;  
and

25 a correcting device for correcting the table based on the  
density difference calculated by the difference calculating  
device;

wherein said storing device stores result data obtained by  
exposing a part of the image forming material with a light  
quantity that corresponds to a predetermined density according to  
30 the table at a time of forming a diagnosis image and by measuring  
a density on said part of the image forming material; and

wherein the image processing apparatus further comprises:

a holder for holding the image forming material;

35 a first controlling device for controlling at least one  
of the exposing device and the developing device so as to offset  
a characteristic change of at least one of the exposing device  
and the developing device;

a third controlling device for controlling, during a  
predetermined period of time after loading the holder to the  
40 image processing apparatus, at least one of the exposing device  
and the developing device based on a difference between the  
density measured at said part of the image forming material and a  
predetermined density for comparison;

a second estimation device for calculating and keeping  
45 a characteristic change of the image forming material based on an  
amount of the control carried out lastly in said third  
controlling device and the stored result data; and

50 a fourth controlling device for controlling, if the  
predetermined period of time after loading the holder to the  
image processing apparatus has elapsed, at least one of the  
exposing device and the developing device based on the  
characteristic change of the image forming material calculated by  
the second estimation device instead of stored passage-time film  
characteristic model data in so as to offset the characteristic  
55 change of the image forming material.

47. (Previously Presented) The image processing apparatus  
of claim 46, further comprising:

5 a clearing device for clearing the characteristic change  
calculated by the second estimation device when the table is  
prepared by the calibrating device and when the fourth  
controlling device is operated.

48. (Previously Presented) The image processing apparatus  
of claim 46, wherein the first controlling device and the fourth  
controlling device are operated when an image formation operation  
is resumed after the image processing apparatus has been stopped  
for a period of time not shorter than a predetermined time.

49. (Previously Presented) The image processing apparatus  
of claim 46, wherein said second estimation device calculates and

keeps a characteristic change of the image forming material every time the image processing apparatus stops for a predetermined period of time.

50. (Previously Presented) A method of image processing with an image processing apparatus, comprising:

exposing, with an exposing device, an image forming material so as to form a latent image on the image forming material based  
5 on image data;

developing and visualizing, with a developing device, the latent image on the exposed image forming material so as to form an image;

measuring an image density of the image on the developed  
10 image forming material;

forming a table to define a relation between an image signal and an image density thereof based on a plurality of different test image data and measured image densities thereof;

storing passage-time film characteristic model data that  
15 indicates a change over time of a characteristic of the image forming material;

calculating a density difference, based on the passage-time film characteristic model, between an image density at a time at which the table was formed and an image density at a time at



20     which an image is formed based on an image signal corresponding  
to diagnostic image data;

          correcting the table based on the calculated density  
difference calculated by the difference calculating;

          storing result data obtained by exposing a part of the image  
25     forming material with a light quantity that corresponds to a  
predetermined density according to the table at a time of forming  
a diagnosis image and by measuring a density at said part of the  
image forming material;

          loading a holder which holds the image forming material to  
30     the image processing apparatus;

          controlling at least one of the exposing device and the  
developing device so as to offset a characteristic change of at  
least one of the exposing device and the developing device;

          controlling, during a predetermined period of time after  
35     loading the holder to the image processing apparatus, at least  
one of the exposing device and the developing device based on a  
difference between the density measured at said part of the image  
forming material and a predetermined density for comparison;

          calculating and keeping a characteristic change of the image  
40     forming material based on an amount of the control carried out  
lastly in the controlling performed based on the measured density  
and the density for comparison, and the stored result data; and

controlling at least one of the exposing device and the  
developing device based on the calculated characteristic change  
45 of the image forming material, instead of the stored passage-time  
film characteristic model data so as to offset the characteristic  
change of the image forming material.

51. (Previously Presented) The method of claim 50, further  
comprising:

clearing the characteristic change of the image forming  
material when the table is prepared and when the at least one of  
5 the exposing device and the developing device are controlled  
based on the calculated characteristic change of the image  
forming material.

52. (Previously Presented) The method of claim 50, wherein  
when an image formation operation is resumed after the image  
processing apparatus has been stopped for a period of time that  
is not shorter than a predetermined time, (i) the controlling the  
5 at least one of the exposing device and the developing device  
so as to offset the a characteristic change of at least one of  
the exposing device and the developing device, and (ii) the  
controlling the at least one of the exposing device and the  
developing device based on the calculated characteristic change  
10 of the image forming material are both carried out.

53. (Previously Presented) The method of claim 50, wherein a characteristic change of the image forming material is calculated and kept every time the image processing apparatus stops for a predetermined period of time.

54. (Previously Presented) A computer-readable recording medium having a computer program stored thereon to be executed by a computer to cause the computer to control an image processor to execute functions comprising:

5        an exposing function for exposing, with an exposing device, an image forming material so as to form a latent image on the image forming material based on image data;

10        a developing function for developing and visualizing, with a developing device, the latent image on the exposed image forming material so as to form an image;

15        a measuring function for measuring an image density of the image on the developed image forming material;

20        a calibrating function for forming a table to define a relation between an image signal and an image density thereof based on a plurality of different test image data and measured image densities thereof;

a storing function for storing passage-time film characteristic model data that indicates a change over time of a characteristic of the image forming material; and

20       a difference calculating function to calculate a density difference, based on the passage-time film characteristic model data, between an image density at a time at which the table was formed and an image density at a time at which an image is formed based on image signal corresponding to diagnostic image data; and

25       a correcting function for correcting the table based on the density difference calculated by the difference calculating function;

      a further storing function for storing result data obtained by exposing a part of the image forming material with a light  
30       quantity that corresponds to a predetermined density according to the table at a time of forming a diagnosis image and by measuring a density on said part of the image forming material;

      a loading function for loading for a holder which holds the image forming material to the image processor;

35       a first controlling function for controlling at least one of the exposing device and the developing device so as to offset a characteristic change of at least one of the exposing device and the developing device;

      a third controlling function for controlling, during a  
40       predetermined period of time after loading the holder to the

image processor, at least one of the exposing device and the developing device based on a difference between the density measured at said part of the image forming material and a predetermined density for comparison;

45           a second estimating function for calculating and keeping a characteristic change of the image forming material based on an amount of the control carried out lastly in the third controlling function of and the stored result data; and

50           a fourth controlling function for controlling, if the predetermined period of time after loading the holder to the image processor has elapsed, at least one of the exposing device and the developing device based on the characteristic change calculated in the second estimating function instead of the stored passage-time film characteristic model data so as to  
55           offset the characteristic change of the image forming material.

55. (Previously Presented) The computer-readable recording medium of claim 54, wherein the image processor is controlled to perform further functions comprising:

5           a clearing function for clearing the characteristic change calculated by the second estimating function when the table is prepared by the calibrating function and when the fourth controlling is performed.

56. (Previously Presented) The computer-readable recording medium of claim 54, wherein the first controlling function and the fourth controlling function are carried out when an image formation operation is resumed after the the image processor has  
5 been stopped for a period of time not shorter than a predetermined time.

57. (Previously Presented) The computer-readable recording medium of claim 54, wherein said second estimation function calculates and keeps a characteristic change of the image forming material every time the image processor stops for a predetermined period of time.